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The Ladybird Beetles (Coleoptera: Coccinellidae) of Arunachal Pradesh, East Himalaya, India with new combinations and new country records

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Abstract. The present communication on ladybird beetles (Coccinellidae) of Arunachal Pradesh (AP), India, a part of Eastern Himalayan biodiversity hotspot, reports a total of 44 species belonging to 22 genera and 6 tribes. Thirty-eight species were examined and illustrated, including three new species records from India: *Illeis shensiensis* Timberlake, 1943, *Afissa rana* (Kapur, 1958), and *Henosepilachna vigintioctomaculata* (Motschulsky, 1857) (first confirmed record from India), and 26 species as new to Arunachal Pradesh. *Epilachna gibbera* Crotch, 1874, *E. mystica* Mulsant, 1850, and *E. undecimspilota* Hope, 1831 are transferred to the genus *Afissa*.

Key words. Checklist, new distributional records, taxonomy, Himalaya.

INTRODUCTION

The family Coccinellidae include around 6,000 described species belonging to 360 genera and 25 tribes under superfamily Coccinelloidea globally (Seago et al. 2011; Robertson et al. 2015), of which approximately 430 species are known from India (Jadwiszczak & Wegrzynowicz 2003; Poorani 2002b, 2004). The coccinellid fauna of Indian part of Himalaya is represented by more than 203 species with most of them recorded from North-west (68 species), Western (107 species), and Central Himalaya (133 species), and the eastern Himalaya in the state of Arunachal Pradesh (AP) remains largely unexplored (Gupta et al. 2018). The recent contributions on ladybird beetle fauna of AP have been made by Poorani & Booth (2016), Poorani & Sambath (2017), Poorani & Thangjam (2019), and Poorani (2019). Therefore, the present study is intended to fill this gap in the distribution and report the previously unrecorded species from the state, along with the new additions to the ladybird beetle fauna of India.

The present study, collectively with the previously published data (6 species), reports a total of 44 species of ladybird beetles belonging to 22 genera and 6 tribes of family Coccinellidae from the state. Among them, 38 species were examined and illustrated (Figs 1–53). Whereas, *Renius cornutus* Li & Wang, 2017, *Halyzia nepalensis* Canepari, 2003, *Halyzia sanscrita* Mulsant, 1853, *Harmonia manillana* (Mulsant, 1866), *Micraspis unicus* Poorani, 2019, and *Oenopia chinensis* (Weise, 1912) were included from literature. All the species are

listed with their valid names along with their major citations and their distribution in AP (in districts), India (in states) and outside India. *Illeis shensiensis* Timberlake, 1943 and *Afissa rana* (Kapur, 1958) are recorded for the first time from India along with the first verified record of *Henosepilachna vigintioctomaculata* (Motschulsky, 1857) from India, which was listed from India by Poorani (2004) in her updated checklist, but without any specific locality data. Twenty-six species have been reported for the first time from the state. New combinations are proposed here for three species of Epilachini: *Afissa gibbera* (Crotch, 1874), comb. nov., *Afissa mystica* (Mulsant, 1850), comb. nov., and *Afissa undecimspilota* (Hope, 1831), comb. nov., based on the phylogenetic classification and revision of the world genera of tribe Epilachnini by Tomaszewska & Szawaryn (2016). These species were previously included in the genus *Epilachna*.

MATERIALS AND METHODS

The materials for the present study collected during recent faunistic surveys to Dihang-Dibang Biosphere Reserve, Namdapha National Park, and Tawang districts of AP along with the specimens, deposited at the Coleoptera Section of Zoological Survey of India, Kolkata. The specimens were identified with the help of following publications: Dieke (1947), Kapur (1946, 1948), Bielawski (1961), Iablokoff-Khnzorian (1982), Booth (1997), Poorani & Booth (2006), Poorani et al. (2008),

Ren et al. (2009), and Tomaszewska & Szawaryn (2016). The specimen identifications were verified also with Dr A.P. Kapur's Coccinellidae collection present at the Coleoptera Section, ZSI. Wherever required, the male genitalia was also dissected, cleaned in 10% KOH solution, and studied for confirming the identity of the species. The specimens were examined using a Nikon SMZ25 stereo zoom-microscope, and the photographs were taken using DS-Ri2 camera with NIS Elements BR 5.10.00 imaging software. Images were also slightly modified using Adobe Photoshop CS3. Scanning electron microscopy technique was also used and the images were taken using Carl Zeiss EVO18. The species with a single asterisk mark (*) are newly recorded from AP whereas with two asterisks marks (**) are recorded for the first time from India. The material examined in each species broadly includes the district in AP, micro locality, date of collection, number of examples, and collector name. The specimens are deposited in the National Zoological Collection of Zoological Survey of India, Kolkata (NZSI).

Institutional abbreviations

NZSI = Zoological Survey of India, M Block, New Alipore, Kolkata, 700053, India;
ZSI-CZRC = Zoological Survey of India, Central Zone Regional Centre, Vijay Nagar, Jabalpur, 482002, Madhya Pradesh;
NBAIR = National Bureau of Agricultural Insect Resources, Bellary Road, Bengaluru, 560024, Karnataka, India;
SCAU = South China Agriculture University, Guangzhou, 510640, China.

RESULTS

Taxonomic Account

Family Coccinellidae Latreille, 1807

Subfamily Coccinellinae Latreille, 1807

Tribe Aspidimerini Mulsant, 1850

Genus *Cryptogonus* Mulsant, 1850

1. *Cryptogonus bimaculatus* Kapur, 1948 (Fig. 1)

Cryptogonus bimaculatus Kapur, 1948: 100, fig. 8D.

Material examined. Papum Pare: Banderdewa, 11.iv.2001 (1 ♂), leg. Sheela.

Distribution. India: Arunachal Pradesh (Papum Pare), Assam, Nagaland, and Tamil Nadu. Elsewhere: Bhutan, China, Myanmar, Nepal, and Thailand (Kapur 1948; Canepari 1997; Poorani 2002b, 2004; Kovář 2007; Ren et al. 2009).

2. *Cryptogonus quadriguttatus* (Weise, 1895) (Fig. 2)*

Aspidiphorus quadriguttatus Weise, 1895: 326.

Cryptogonus quadriguttatus: Weise, 1900: 428; Kapur, 1948: 97, fig. 7A–I.

Cryptogonus quadriguttatus var. *confluens* Kapur, 1948: 99.

Cryptogonus quadriguttatus var. *nigriscens* Kapur, 1948: 99.

Material examined. Papum Pare: Banderdewa, 11.iv.2001 (1 ♀) (25402/H4A), leg. Sheela.

Distribution. India: Arunachal Pradesh (Papum Pare), Assam, Goa, Nagaland, Uttar Pradesh, Uttarakhand, Sikkim, Tripura, and West Bengal. Elsewhere: Bhutan, and China (Kapur 1948, 1963; Poorani 2002b, 2004).

Tribe Chilocorini Mulsant, 1846

Genus *Renius* Li & Wang, 2017

3. *Renius cornutus* Li & Wang, 2017

Renius cornutus Li & Wang, 2017 in Li et al. 2017: 122, 124.

Distribution. India: Arunachal Pradesh (Tiwarigaow). Elsewhere: China (Poorani & Thangjam, 2019).

Remarks. *R. cornutus* was described by Li & Wang (2017) from China (Tibet), the type material of which is deposited at SCAU. Recently, Poorani & Thangjam (2019) identified and reported this species from Arunachal Pradesh, based on a female specimen, deposited at NBAIR. We lack this species in our collection, therefore could not examine the material of the species.

Genus *Priscibrumus* Kovar, 1997

4. *Priscibrumus uropygialis* Mulsant, 1853 (Fig. 3)*

Exochomus uropygialis Mulsant, 1853: 196.

Brumus uropygialis: Crotch, 1874: 196.

Exochomus (*Exochomus*) *uropygialis*: Barovsky, 1922: 297; Miyatake, 1985: 11–12, figs 19–22.

Priscibrumus uropygialis: Kovář, 1997: 117.

Material examined. Changlang: Namdapha National Park, 24.vi.2017 (1ex.) (24904/H4A), 361m, leg. J. Saini.

Distribution. India: Arunachal Pradesh (Changlang), Himachal Pradesh, and Jammu & Kashmir. Elsewhere: Bhutan, Nepal, and Pakistan (Bielawski 1979; Canepari 1997; Poorani 2002b, 2004).

Tribe Coccinellini Latreille, 1807

Genus *Alloneda* Iablokoff-Khnzorian, 1979



Figs 1–9. Habitus of (1) *Cryptogonus bimaculatus* Kapur, 1948; (2) *Cryptogonus quadriguttatus* (Weise, 1895); (3) *Priscibrumus uropygialis* Mulsant, 1853; (4) *Alloneda dodecaspilota* (Hope, 1831); (5) *Calvia albida* Bielawski, 1972; (6) *Calvia sykesii* (Crotch, 1874); (7) *Coccinella luteopicta* (Mulsant, 1866); (8) *Coccinella septempunctata* Linnaeus, 1758; (9) *Coccinella transversalis* Fabricius, 1781.

5. *Alloneda dodecaspilota* (Hope, 1831) (Fig. 4)*

Coccinella 12-spilota Hope, 1831: 31.

Caria duodecimspilota: Mulsant, 1850: 236.

Aiolocaria dodecaspilota: Crotch, 1874: 178; Kapur, 1963, 26, fig. 9A.

Palaeoneda dodecaspilota: Mader, 1934: 302.

Alloneda dodecaspilota: Iablokoff-Khnzorian, 1982: 277, fig. 45b; Miyatake, 1985: 20, figs 38–42.

Material examined. West Kameng: Bokhar, 27.v.1961 (2 exs) (25302/H4A), 2800m, leg. K.C. Jayram.

Distribution. India: Arunachal Pradesh (West Kameng), Himachal Pradesh, Sikkim, and West Bengal. Elsewhere: Bhutan, China, Myanmar, Nepal, Thailand, and Vietnam (Miyatake 1985; Canepari 1997; Poorani 2002b, 2004).

Genus *Calvia* Mulsant, 1846**6. *Calvia albida* Bielawski, 1972 (Fig. 5)***

Calvia albida Bielawski, 1972: 308, figs 131, 132–139; Booth, 1997: 931, fig. 28, 41; Poorani, 2014: 4, figs 1d, 3.

Material examined. Tawang: Jang, 25.ix.2013 (2 exs) (25398/H4A), leg. P.P.B.

Distribution. India: Arunachal Pradesh (Tawang), Manipur, Sikkim, Uttar Pradesh, and West Bengal. Elsewhere: Nepal (Poorani 2002b, 2004; Poorani & Sambath, 2017).

7. *Calvia sykesii* (Crotch, 1874) (Fig. 6)*

Anisocalvia sykesii Crotch, 1874: 146.

Calvia sykesii: Korschefsky, 1932: 529; Booth, 1997: 930, fig. 27.

Material examined. Changlang: Namdapha National Park, Deban, 361m, 24.vi.2017 (4 exs) (24906/H4A), leg. J. Saini.

Distribution. India: Arunachal Pradesh (Changlang), Assam, Meghalaya, Sikkim, Tamil Nadu, and West Bengal. Elsewhere: Nepal (Booth 1997; Poorani 2002b, 2004).

Genus *Coccinella* Linnaeus, 1758**8. *Coccinella luteopicta* (Mulsant, 1866) (Fig. 7)***

Adalia luteopicta Mulsant, 1866: 45.

Lioadalia luteopicta: Crotch, 1874: 104; Bielawski, 1971: 7–8, figs 27–35.

Coccinella luteopicta: Iablokoff-Khnzorian, 1982: 395; Canepari, 1997: 52.

Material examined. East Kameng: Seppo, 3500m, 11.x.1996, (1 ex.) (25303/H4A), leg. S.K. Mondal. Tawang: 24.ix.2013, (1 ex.) (25304/H4A), leg. P.P.B; Jang: 26.ix.2013 (1 ex.) (25305/H4A), leg. J. Majumder.

Distribution. India: Arunachal Pradesh (East Kameng, Tawang), Himachal Pradesh, Sikkim, Uttar Pradesh, and West Bengal. Elsewhere: Bhutan, China, and Nepal (Poorani 2002b, 2004; Kovář 2007).

9. *Coccinella septempunctata* Linnaeus, 1758 (Fig. 8)

Coccinella 7-punctata Linnaeus, 1758: 365.

Coccinella septempunctata: Korschefsky, 1932: 486.

Coccinella divaricata Olivier, 1808: 1001.

Coccinella confusa Wiedemann, 1823: 72.

Coccinella bruckii Mulsant, 1866: 90; Crotch, 1874: 46.

Coccinella septempunctata brucki: Korschefsky, 1932: 491.

Material examined. West Kameng: Kalaktang, Stn. 17, 17.iii.1961, (1 ex.), Rahang, Stn. 34, 17.iv.1961, (1 ex.), Bomdila Pass, Stn. 33, 17.iv.1961, (1 ex.), Shergaon, Stn. 51, 05.v.1961, (1 ex.), Shergaon, Stn. 25, 08.v.1961, (2 exs), Moshing, Stn. 22, 11.v.1961, (2 exs), But Vill. Stn. 61, 24.vi.1961, (1 ex.), leg. K.C. Jayram. Gandhigram: 22.ii.1988 (1 ex.), 26.ii.1988 (1 ex.). Papum Pare: Kokila North of Chessa, 21.x.1996 (1ex.) (24302/H4A), leg. A.M. Biswas. Roing: Debang Valley, 25.i.2000 (1 ex.) (24303/H4A), Deopani, 250m, 29.i.2000 (2 exs) (25306/H4A), leg. S.K. Mondal. Ziro: Joram, 2.vi.2000 (3 exs) (24304/H4A), leg. B. Mitra. West Kameng: Tenga, 24.iv.2001 (1 ex.) (25307/H4A), leg. S. Sheela. Changlang: Namdapha National Park, Lankhal Nala, 6.iii.2017 (1 ex.) (25308/H4A), Deban River Bed, 345m, 12.iii.2017 (2 exs) (24309/H4A), Anamika Fall, 413m, 13.iii.2017 (1 ex.) (25310/H4A), leg. J. Saini. Tawang: Zemithang, 24.vi.2017 (3 exs) (24911/H4A), Lumla, 24.vi.2017 (1 ex.) (25311/H4A), 11.iv.2018 (1 ex.) (24912/H4A), Namtsering, 15.iv.2018 (1 ex.) (24913/H4A)/16.iv.2018 (1 ex.) (24914/H4A), 17.iv.2018 (7 exs) (24915/H4A), leg. J. Saini. Dihang Dibang Biosphere Reserve, Maliny, 25.x.2017 (5 exs) (24437/H4A), leg. D. Gupta.

Distribution. Widely distributed throughout India including Arunachal Pradesh (Gandhigram, Papum Pare, Roing, Ziro, West Kameng, Changlang, Tawang, Dihang Dibang Biosphere Reserve). Elsewhere: China, Afro-tropical Region, North America, Pakistan, and Sri Lanka (Poorani 2002b, 2004; Kovář 2007; Poorani & Sambath 2017).

10. *Coccinella transversalis* Fabricius, 1781 (Fig. 9)*

Coccinella transversalis Fabricius, 1781: 97; Iablokoff-Khnzorian, 1979: 68.

Coccinella repanda Thunberg, 1781: 18.

Material examined. Papum Pare: Kokila North of Chessa, 21.x.1996 (1ex.) (24299/H4A), leg. A.M. Biswas; Balijan, 23.x.1996 (1ex.) (24300/H4A), leg. S.K. Mondal; Baderdewa: 11.iv.2001 (2 exs) (24301/H4A), leg. Sheela. East Siang: Boleng, 18.i.2000 (1 ex.) (25312/

H4A), leg. S.K. Mondal. Dihang Dibang Biosphere Reserve, Maliny, 25.x.2017 (4 exs) (24436/H4A), leg. D. Gupta.

Distribution. Widely distributed in throughout India including Arunachal Pradesh (Papum Pare, Baderdewa, East Siang, Dihang Dibang Biosphere Reserve). Elsewhere: Australia, Bangladesh, Indochina, Indonesia, Japan, Nepal, New Zealand, and Sri Lanka (Poorani 2002b, 2004).

Remarks. It is commonly distributed species in India but was not earlier reported from the state of Arunachal Pradesh.

Genus *Coelophora* Mulsant, 1850

11. *Coelophora bissellata* Mulsant, 1850 (Fig. 10)*

Coelophora bissellata Mulsant, 1850: 400.

Spilocaria bissellata: Timberlake, 1943: 58.

Lemnia (Spilocaria) bissellata: Iablokoff-Khnzorian, 1979: 62.

Lemnia bissellata: Hoàng, 1983: 74; Iablokoff-Khnzorian, 1982: 218.

Caria gracilicornis Weise, 1902: 505.

Material examined. Siang, NEFA: 10.xi.1971 (1 ex. on leaves,) (25318/H4A), leg. S. Ghose. Papum Pare: Kokila, North of Chessa, 21.x.1996 (1 ex.) (25315/H4A), leg. A.M. Biswas; Banderdewa, 11.iv.2001 (1 ex.) (25320/H4A), leg. Sheela. Debang Valley: Kannu North, 1.ii.2000 (1 ex.) (25322/H4A), leg. S.K. Mondal. Roing : Diban Valley, 29.ix.2000 (1 ex.) (25319/H4A), leg. R.S. Mridha. Itanagar: Ganga Lake, 28.v.2000 (4 exs) (25314/H4A), leg. T.K.Mondal; Naharlagun, 530m, 29.v.2000 (1 ex.) (25321/H4A), leg. K. Bhattacharya. West Siang: Aalo (formerly Along), Hissan Colony, 11.vi.2000 (2 exs) (25317/H4A), leg. R.S. Mridha. East Kameng: Rang, Gthili, 17.ix.2000 (5 exs) (25313/H4A), leg. A.R. Lahiri. Changlang, Deban Rest House, 4.iii.2017 (1 ex.) (25316/H4A), leg. J. Saini.

Distribution. India: Arunachal Pradesh (Siang, Papum Pare, Roing, Debang Valley, West Siang, East Kameng, Changlang), Assam, Himachal Pradesh, Karnataka, Kerala, Manipur, Meghalaya, Sikkim, Tamil Nadu, Uttar Pradesh, and West Bengal. Elsewhere: Bhutan, Bangladesh, China, Indonesia, Nepal, New Guinea, Philippines, Thailand, and Vietnam (Poorani 2002b, 2004; Kovář 2007).

Genus *Halyzia* Mulsant, 1846

12. *Halyzia dejavu* Poorani & Booth, 2006 (Fig. 11)

Halyzia dejavu Poorani & Booth, 2006: 66, pl. 1B, figs 10–17.

Material examined. Changlang: Deban, 24.xii.2017 (1ex.) (24905/H4A), leg. J. Saini.

Distribution. India: Arunachal Pradesh (Changlang, Tawang), Sikkim; Nepal (Poorani & Booth 2006; Poorani & Sambath 2017).

13. *Halyzia nepalensis* Canepari, 2003

Halyzia nepalensis Canepari 2003: 261, figs 1–2.

Distribution. India: Arunachal Pradesh. Elsewhere: Myanmar, and Nepal (Poorani & Thangjam 2019).

Remarks. Poorani & Thangjam (2019) reported this species from Arunachal Pradesh, based on photographic records, which they found identical with the specimens from Myanmar, deposited at NZSI. The specimens of this species from Arunachal Pradesh were unavailable with us for examination.

14. *Halyzia sanscrita* Mulsant, 1853

Halyzia sanscrita Mulsant, 1853: 152.

Distribution. India: Arunachal Pradesh (Tawang), Himachal Pradesh, Sikkim, and Uttarakhand. Elsewhere: Bhutan, China, and Nepal (Poorani 2002b, 2004; Kovář 2007; Poorani & Sambath 2017).

Remarks. Poorani & Sambath (2017) recorded this species from Tawang, Arunachal Pradesh, based on the specimens, deposited at ZSI-CZRC, which were examined by the authors.

Genus *Harmonia* Mulsant, 1846

15. *Harmonia dimidiata* (Fabricius, 1781) (Fig. 12)

Coccinella dimidiata Fabricius, 1781: 94.

Coccinella dimidia Hope, 1831: 30.

Leis dimidiata: Mulsant, 1850: 242.

Coccinella quindecimmaculata Hope, 1831: 30.

Coccinella bicolor Hope, 1831: 31.

Harmonia dimidiata: Miyatake, 1965: 62.

Material examined. West Kameng: Salari, Stn. 60, 22.vi.1961, (2 exs), But village, Stn. 61, 24.vi.1961, (1 ex.), Dengzi, Stn. 16, 25.vi.1961, (1 ex.), leg. K.C. Jayram.

Distribution. India: Arunachal Pradesh (West Kameng, Tawang), Assam, Himachal Pradesh, Jammu & Kashmir, Manipur, Punjab, Rajasthan, Sikkim, and West Bengal. Elsewhere: Bhutan, China, Japan, Nepal, and Pakistan (Poorani 2002b, 2004; Kovář 2007; Poorani & Sambath 2017).



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Figs 10–18. Habitus of (10) *Coelophora bissellata* Mulsant, 1850; (11) *Halyzia dejavu* Poorani & Booth, 2006; (12) *Harmonia dimidiata* (Fabricius, 1781); (13) *Harmonia eucharis* (Mulsant, 1853); (14) *Harmonia sedecimnotata* (Fabricius, 1801); (15) *Hippodamia variegata* (Goeze, 1777); (16) *Illeis confusa* Timberlake, 1943; (17) *Illeis indica* Timberlake, 1943; (18) *Macroilleis hauseri* (Mader, 1930).

16. *Harmonia eucharis* (Mulsant, 1853) (Fig. 13)*Ballia eucharis* Mulsant, 1853: 167.

Material examined. West Kameng: Rahung, Stn. 34, 7.iv.1961, (1 ex.), Rahung, Stn. 35, (1 ex.) 24.iv.1961, leg. K.C. Jayram. Tawang: Zemithang, 24.vi.2017, (1 ♀), leg. J. Saini. Dibang Valley, Dihang Dibang Biosphere Reserve, Mipi, 01.xi.2017 (1 ex), leg. D. Gupta.

Distribution. India: Arunachal Pradesh (Tawang, West Kameng, Dihang Dibang Biosphere Reserve), Jammu and Kashmir, Himachal Pradesh, Manipur, Sikkim, Uttarakhand, and Uttar Pradesh. Elsewhere: China, Myanmar, Nepal, and Pakistan (Poorani 2002b, 2004; Kovář 2007; Poorani & Sambath, 2017).

Remarks. See Kovář (2007) for synonyms.

17. *Harmonia manillana* (Mulsant, 1866)*Caria manillana* Mulsant, 1866: 170.*Leis atrocincta* Mulsant, 1866: 175.*Neda paulinae* Mulsant, 1866: 203.*Leis dunlopi* Crotch, 1874: 121.*Leis cerasicolor* Crotch, 1874: 121.*Leis aterrima* Crotch, 1874: 121.*Leis papuensis* Crotch, 1874: 121.*Leis papuensis* var. *suffusa* Crotch, 1874: 121.

Distribution. India: Arunachal Pradesh (Pasighat). Elsewhere: Philippines, Malaysia, and Indonesia (Iablokoff-Khnzorian 1982; Poorani & Booth 2016).

Remarks. Poorani & Booth (2016) first time recorded this species from the Palearctic region of Arunachal Pradesh, and also mentioned to be very rare in mainland India. Earlier, the species was known from the oriental region of Indonesia, Malaysia, and the Philippines. We could not find specimen of this species from the study area in our collection.

18. *Harmonia sedecimnotata* (Fabricius, 1801) (Fig. 14)**Coccinella sedecimnotata* Fabricius, 1801: 370.*Daulis 16-notata*: Mulsant, 1850: 296.*Callineda sedecimnotata*: Crotch, 1874: 161.*Harmonia sedecimnotata*: Timberlake, 1943: 18.

Material examined. Changlang: Namdapha National Park, Deban, 24.vi.2017 (3 exs) (24918/H4A), leg. J. Saini.

Distribution. India: Arunachal Pradesh (Changlang), Sikkim, and West Bengal. Elsewhere: China, Nepal, and Southeast Asia (Poorani 2002b, 2004; Kovář 2007).

Genus *Hippodamia* Chevrolat, 1836**19. *Hippodamia variegata* (Goeze, 1777) (Fig. 15)****Coccinella variegata* Goeze, 1777: 246.*Adonia variegata*: Mulsant, 1846: 39.*Hippodamia variegata*: Belicek, 1976: 338.*Hippodamia (Adonia) variegata*: Iablokoff-Khnzorian, 1982: 326.

Material examined. West Kameng: Dengzi, Stn. 16, 25.v.1961 (2 exs); Salari, Stn. 60, 22.vi.1961 (2 exs), leg. K.C. Jayram.

Distribution. India: Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir, Maharashtra, and Uttar Pradesh. Elsewhere: widely distributed in Afrotropical, Nearctic, Oriental regions; Afghanistan, China, Nepal, and Pakistan (Poorani 2002b, 2004; Kovář 2007).

Genus *Illeis* Mulsant, 1850**20. *Illeis confusa* Timberlake, 1943 (Fig. 16)****Illeis confusa* Timberlake, 1943: 61.

Material examined. Tawang: Zemithang, 24.vi.2017 (1 ♂) (24909/H4A), leg. J. Saini.

Distribution. India: Arunachal Pradesh (Tawang), Assam, and West Bengal. Elsewhere: China, Nepal, and Thailand (Poorani 2002b, 2004; Poorani & Lalitha 2018; Kovář 2007).

21. *Illeis indica* Timberlake, 1943 (Fig. 17)**Illeis indica* Timberlake, 1943: 61.

Material examined. Tawang: Zemithang, 24.vi.2017 (1 ex.), leg. J. Saini.

Distribution. India: Arunachal Pradesh (Tawang), Jammu & Kashmir, Himachal Pradesh, and Uttar Pradesh. Elsewhere: Pakistan, and Thailand (Poorani 2002b, 2004; Kovář 2007).

22. *Illeis shensiensis* Timberlake, 1943 (Figs 19–23)**Illeis shensiensis* Timberlake, 1943: 61; Bielawski, 1961: 358, figs 5–6, 14; Ren et al., 2009: 243.

Material examined. Changlang: Deban, 355 m, 24.xii.2017 (2 ♂♂) (25409/H4A), leg. J. Saini.

Distribution. India: Arunachal Pradesh (Changlang). Elsewhere: China (Shensi), and Pakistan (Kovář 2007; Hayat et al. 2017).

Remarks: *I. shensiensis* can be distinguished from closely related species by the following characters: pro-



Figs 19–23. *Illeis shensiensis* Timberlake, 1943. (19) Habitus; (20) Siphon; (21) Phallobase in dorsal view; (22) Phallobase in lateral; (23) Apical portion of Siphon.

notum with two small black marks (Fig 19), siphon not bifid at apex (Fig 23), median lobe of tegmen having apex strongly curved upward and more or less depressed (Figs 21, 22), parameres shorter and stouter and somewhat strongly curved at base, otherwise straight (Fig 21). The male genitalia of our specimen is identical with that of *I. shensiensis* as illustrated in Bielawski (1961: 358, Figs 5–6, 14) and Ren et al. (2009: 243, Fig 325).

Genus *Macroilleis* Miyatake, 1965

23. *Macroilleis hauseri* (Mader, 1930) (Fig. 18)

Halysia hauseri Mader, 1930: 162.

Macroilleis hauseri: Miyatake 1965: 71–73.

Material examined. Tawang: Zemithang, 24.vi.2017 (1 ♂) (25399/H4A), leg. J. Saini.

Distribution. India: Arunachal Pradesh (Tawang), and West Bengal. Elsewhere: Bhutan, China, Vietnam, and

Pakistan (Poorani 2002b; 2004; Kovář 2007; Poorani & Sambath 2017).

Genus *Menocheilus* Timberlake, 1943

24. *Menocheilus sexmaculata* (Fabricius, 1781) (Fig. 24)

Coccinella sexmaculata Fabricius, 1781: 96.

Material examined. Papum Pare: Bandardewa, 11.iv.2001 (2exs) (24307/H4A), leg. Sheela. Dihang Dibang Biosphere Reserve, Maliny, 25.x.2017 (2 exs) (24438/H4A), leg. D. Gupta.

Distribution. Widely distributed in India including Arunachal Pradesh (Papum Pare; Dihang Dibang Biosphere Reserve). Elsewhere: Australian region, Arab Emirates, Afghanistan, Bangladesh, Bhutan, China, Indonesia, Iran, Japan, Malaysia, Myanmar, Nepal, Oman, Pakistan, Sri Lanka, Philippines, and Vietnam (Poorani 2002b, 2004; Kovář 2007).

Remarks. See Kovář (2007: 619) for synonymy.

Genus *Micraspis* Chevrolat, in Dejean, 1836

25. *Micraspis univittata* (Hope, 1831) (Fig. 25)*

Coccinella univittata Hope, 1831: 31.

Alesia univittata: Mulsant, 1850: 357.

Tytthaspis univittata: Korschefsky, 1932: 384.

Micraspis univittata: Iablokoff-Khnzorian, 1982: 511.

Material examined. Along: Hissan Colony, 11.vi.2000 (1 ex.) (25408/H4A), leg. R.S. Mridha.

Distribution. India: Arunachal Pradesh (Along), Andhra Pradesh, Bihar, Karnataka, Odisha, Tamil Nadu, Tripura, and Uttarakhand. Elsewhere: China, and Nepal (Poorani 2002b; 2004; Kovář 2007).

26. *Micraspis unicus* Poorani, 2019

Micraspis unicus Poorani, 2019: 190, fig. 1.

Distribution. India: Arunachal Pradesh (Mayodia).

Remarks. This species was described recently by Poorani (2019) from Arunachal Pradesh, based on male, holotype and female paratype, deposited at NBAIR. We could not find any specimen of this species in our collection.

Genus *Oenopia* Mulsant, 1850

27. *Oenopia chinensis* (Weise, 1912)

Coelophora chinensis Weise, 1912: 113.

Gyrocaria chinensis: Miyatake, 1965: 65.

Oenopia chinensis: Hoàng, 1983: 91.

Distribution. India: Arunachal Pradesh (Pasighat), and Meghalaya. Elsewhere: China (Poorani 2002a, 2002b; 2004; Kovář 2007; Poorani & Thangjam 2019).

Remarks. Earlier known from China, this species was reported from India by Poorani & Thangjam (2019), based on a female specimen from Meghalaya and larvae from Arunachal Pradesh, materials of which are deposited at NBAIR. We could not find any adult specimen of this species from the study area in our collection.

28. *Oenopia kirbyi* Mulsant, 1850 (Fig. 26)*

Oenopia kirbyi Mulsant, 1850: 425; Poorani, 2002a: 102, figs 4, 16, 23, 31.

Gyrocaria kirbyi: Miyatake, 1965: 66, fig. 34.

Material examined. Dihang Dibang Biosphere Reserve: Maliney, 27.x.2017 (1ex.) (24432/H4A); Anini, 27.x.2017 (1ex.) (24433/H4A), leg. D. Gupta. Siang: NEFA, 10.xi.1971 (1 ex. on leaves) (25404/H4A), leg. S. Ghose. Roing: Dibang Valley, 250 m, 25.i.2000 (2 exs) (25405/H4A), 27.i.2000 (1 ex.) (25406/H4A), 29.i.2000 (5 exs) (25407/H4A), leg. S.K. Mondal.

Distribution. India: Arunachal Pradesh (Dihang-Dibang Biosphere Reserve, Siang, Roing), Meghalaya, Mizoram, Sikkim, and West Bengal; Bhutan. Elsewhere: China, Myanmar, Nepal, and Thailand (Poorani 2002a, 2002b, 2004; Kovář 2007).

29. *Oenopia mimica* Weise, 1902 (Fig. 27)*

Oenopia mimica Weise, 1902: 505; Poorani, 2002a: 104, figs 5, 17, 24, 32.

Gyrocaria mimica: Miyatake, 1985: 16.

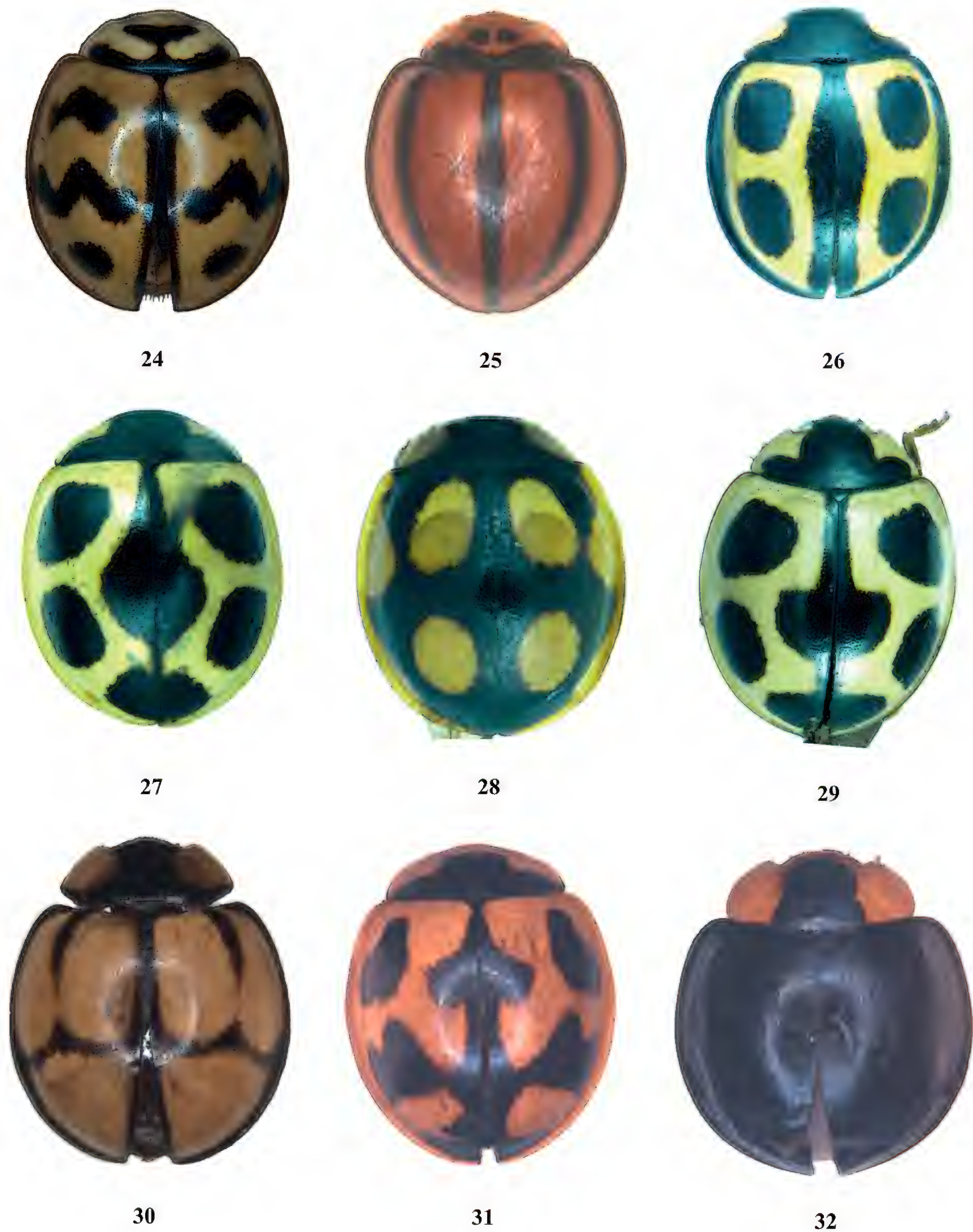
Material examined. Siang: NEFA, 10.xi.1971 (1 ex. on leaves) (25324/H4A), leg. S. Ghose. Lower Subansiri: Bandardewa, 19.x.1996 (1 ex.) (25325/H4A), leg. S.K. Mondal. Tawang: Jung, 23.ix.2013 (2 exs) (25323/H4A), leg. J. Majumder. Dihang Dibang Biosphere Reserve, Anini, 25.x.2019 (1 ex.), leg. D. Gupta.

Distribution. India: Arunachal Pradesh (Tawang, Siang, Lower Subansiri), Himachal Pradesh, Uttar Pradesh, and Sikkim. Elsewhere: Laos, Myanmar, and Nepal (Poorani 2002a, 2002b, 2004; Kovář 2007).

30. *Oenopia quadripunctata* Kapur, 1963 (Fig. 28)*

Oenopia quadripunctata Kapur, 1963: 27; Poorani, 2002a: 102, fig. 3.

Material examined. Debang Valley: Old Aloppa, 16.ix.2000 (1 ex.), leg. A.R. Lahiri.



Figs 24–32. Habitus of (24) *Menocheilus sexmaculata* (Fabricius, 1781); (25) *Micraspis univittata* (Hope, 1831); (26) *Oenopia kirbyi* Mulsant, 1850; (27) *Oenopia mimica* Weise, 1902; (28) *Oenopia quadripunctata* Kapur, 1963; (29) *Oenopia sauzeti* Mulsant, 1866; (30) *Oenopia sexareata* (Mulsant, 1853); (31) *Propylea luteopustulata* (Mulsant, 1850); (32) *Synona melanopepla* (Mulsant, 1850).

Distribution. India: Arunachal Pradesh (Debang Valley), Meghalaya, Mizoram, Nagaland, Sikkim, and West Bengal. Elsewhere: Bhutan, China, Myanmar, and Nepal (Poorani 2002a, 2002b, 2004; Kovář 2007).

31. *Oenopia sauzeti* Mulsant, 1866 (Fig. 29)

Oenopia sauzeti Mulsant, 1866: 281; Poorani, 2002a: 103, figs 6, 18, 25, 33.

Gyrocaria sauzeti: Miyatake, 1967: 76; 1985: 15, figs 30–33.

Material examined. Lower Subansiri: Banderdewa, 25.i.2000 (1 ex.) (24295/H4A), leg. S.K. Mondal. West Kameng, Kalaktang, Stn.17, 17.iii.1961 (1 ex.), Dukongko River, 02.v.1961 (1 ex.); Rupa, Stn. 29, 03.v.1961 (1 ex.); Shergaon, Stn. 51, 5.v.1961 (1 ex.)/Stn. 25, 8.v.1961 (2 exs); Domko, Stn. 52, 10.v.1961 (1 ex.); Moshing, Stn. 22, 11.v.1961 (1 ex.); Dengzi, Stn. 16, 25.v.1961 (3 exs); Ankaling, Stn. 12, 25.v.1961 (1 ex.), leg. K.C. Jayram. Changlang: Namdapha National Park, 361m, 24.vi.2017 (1 ex.) (24855/H4A), leg. J. Saini.

Distribution. India: Arunachal Pradesh (Changlang: Namdapha National Park, West Kameng, Lower Subansiri), Assam, Himachal Pradesh, Jammu & Kashmir, Meghalaya, Sikkim, Uttar Pradesh, and West Bengal. Elsewhere: Bhutan, China, Pakistan, Laos, Myanmar, Nepal, Thailand, and Vietnam (Poorani 2002a, 2002b, 2004; Kovář 2007; Poorani & Sambath 2017).

32. *Oenopia sexareata* (Mulsant, 1853) (Fig. 30)

Coelophora sexareata Mulsant, 1853: 181; Poorani, 2002a: 101, figs 2, 15, 22, 30.

Coelophora sexareata var. *lacerata* Sicard, 1913: 500.

Gyrocaria sexareata: Miyatake, 1967: 76.

Oenopia sexareata: Hoàng, 1983: 62, 92.

Material examined. West Kameng: Rahung, Stn.35, 24.iv.1961, (1 ex.), Siggun, Stn.50, 4.v.1961, (3 exs), Denzi, Stn.16, 25.v.1961, (1 ex.) leg. K.C. Jayram, Lower Subansiri: Banderdewa, 19.x.1996 (1 ex.) (25327/H4A), leg. A.M. Biswas. Roing: Dibang Valley, 250m, 25.i.2000 (1 ex.) (25328/H4A), 29.i.2000 (3 exs) leg. S.K. Mondal. Papum Pare: Banderdewa, 11.iv.2001 (2 exs) (25329/H4A) leg. Sheela. Dihang Dibang Biosphere Reserve: Maliney, 27.x.2017 (1ex.) (24434/H4A) leg. D. Gupta.

Distribution. India: Arunachal Pradesh (Lower Subansiri, Roing, Papum Pare, West Kameng, Dihang Dibang Biosphere Reserve), Assam, Bihar, Himachal Pradesh, Meghalaya, Sikkim, Uttar Pradesh, and West Bengal. Elsewhere: Bhutan, China, Indonesia, Japan, Myanmar,

Nepal, and Vietnam (Canepari 1997; Poorani 2002a, 2002b, 2004; Kovář 2007).

Genus *Propylea* Mulsant, 1846

33. *Propylea luteopustulata* (Mulsant, 1850) (Fig. 31)

Oenopia (Pania) luteopustulata Mulsant, 1850: 421.

Propylea luteopustulata: Vandenberg & Gordon, 1991: 30.

Material examined. West Kameng: Kalaktang, Stn.17, 17.iii.1961, (1 ex.); Rahung, Stn. 35, 24.iv.1961, (1 ex.); Rahung, Stn. 34, 25.iv.1961, (1 ex.); Siggun, Stn. 50, 4.v.1961, (1 ex.); Shergaon, Stn. 25, 08.v.1961 (1 ex.); Domko, Stn. 52, 10.v.1961, (1 ex.); Moshing, Stn. 22, 11.v.1961 (1 ex.); Dengzi, Stn.16, 15.v.1961, (1 ex.); Ankaling, Stn. 12, 15.v.1961 (2 exs), leg. K.C.Jayram; Zamiri, 14.x.1997 (1 ex.), leg. S.K. Mondal. Siang: NEFA, 10.xi.1971 (2 exs on leaves), leg. S. Ghose. Lower Subansiri: Banderdewa, 19.x.1996 (2 exs), leg. A.M. Biswas. Tawang: Center Dirang, 15.xi.1997 (2 exs on foliage), leg. A.K. Sanyal. Roing: Debang Valley, Rukmo, 27.i.2000 (2 exs), leg. S.K. Mondal. Changlang: Namdapha National Park, 361m, 24.vi.2017 (1 ex.), leg. J. Saini.

Distribution. India: Arunachal Pradesh (Siang, Lower Subansiri, Tawang, West Kameng, Roing, Changlang), Assam, Andaman & Nicobar Islands, Himachal Pradesh, Meghalaya, Uttar Pradesh, Sikkim, and West Bengal. Elsewhere: Bhutan, China, Myanmar, Nepal, Sri Lanka, Thailand, and Vietnam (Poorani 2002b, 2004; Kovář 2007; Poorani & Sambath 2017).

Genus *Synona* Pope, 1989

34. *Synona melanopepla* (Mulsant, 1850) (Fig. 32)*

Synia melanopepla Mulsant, 1850: 376.

Synia melanaria ab. *melanopepla*: Korschefsky, 1932: 276.

Leis rougeti Mulsant, 1866: 175.

Synia melanaria ab. *rougeti*: Korschefsky, 1932: 276.

Synona melanopepla: Poorani et al., 2008: 583, figs 1, 2, 17–22, 52, 53.

Material examined. Roing: Dibang Valley, 19.ix.2000 (1 ♂) (25326/H4A), leg. R.S. Mridha.

Distribution. India: Arunachal Pradesh (Roing), Assam, Bihar, Karnataka, Meghalaya, Odisha, Tamil Nadu, and Uttar Pradesh. Elsewhere: Vietnam (Kovář 2007; Poorani et al. 2008).

Tribe Epilachnini Mulsant, 1846**Genus *Afissa* Dieke, 1947**

Tomaszewska & Szawaryn (2016) in their revision of world genera of Epilachnini, proposed *Epilachna* to be a new world genus and established *Afissa* as a valid genus. Here, three species *Epilachna gibbera* Crotch, 1874, *Epilachna mystica* Mulsant, 1850, and *Epilachna undecimspilota* Hope, 1831 are combined with *Afissa* based on the shared morphological characters, proposed by Tomaszewska & Szawaryn (2016) for the genus: Lateral margins of elytra not or hardly visible dorsally, sometimes narrowly explanate, and meta-ventral and abdominal post-coxal lines present.

35. *Afissa gibbera* (Crotch, 1874) comb. nov. (Fig. 33)*

Epilachna gibbera Crotch, 1874: 80.

Afissa gibbera: Kapur, 1963: 10.

Epilachna gibbera: Jadwiszczak & Węgrzynowicz, 2003: 69.

Material examined. Tawang: Camp, Stn. No., 14.xii.1985, (1 ♂), leg. S.K.B. & ANTJ.

Distribution. India: Arunachal Pradesh (Tawang), and Sikkim. Elsewhere: Nepal (Poorani 2004).

36. *Afissa mystica* (Mulsant, 1850) comb. nov. (Figs 41–50)

Epilachna mystica Mulsant, 1850: 841.

Afissa mystica: Dieke, 1947: 146, figs 100, 169.

Epilachna mystica: Li & Cook, 1961: 51.

Material examined. West Kameng: Munna, 8500 m, 10.x.1996, (4 exs), leg. S.K. Mondal; Bomdila: Sherra Bash, 30.viii.1998, (3 exs), leg. A.R.Lahiri. East Kameng: Seppo, 3500m, 11.x.1996, (2 exs), leg. S.K. Mondal.

Distribution. India: Arunachal Pradesh (Tawang, West Kameng, East Kameng), Karnataka, Sikkim, Uttarakhand, and West Bengal (North). Elsewhere: Bhutan, China, Myanmar, and Nepal (Poorani 2004; Kovář 2007; Poorani & Sambath 2017).

37. *Afissa nielamuensis* (Pang & Mao, 1977) (Fig. 34)

Epilachna nielamuensis Pang & Mao, 1977: 323, 327; Miyatake, 1985: 30; Jadwiszczak & Węgrzynowicz, 2003: 94; Ren et al., 2009: 291.

Afissa nielamuensis: Poorani & Thangjam, 2019: 7, figs 6A–B.

Material examined. Tawang: Jang, Jangda, 2,572 m, 24.ix.2018 (1 ♂), leg. J. Saini.

Distribution. India: Arunachal Pradesh (Tawang). Elsewhere: China and Nepal (Poorani 2004; Poorani & Thangjam 2019).

38. *Afissa rana* (Kapur, 1958) (Figs 51–53)**

Afissula rana Kapur, 1958: 320.

Afissa rana: Tomaszewska & Szawaryn, 2016: 53.

Material examined. West Kameng: Bomdila, Stn. 32, 25.vi.1961 (6 exs), 29.vi.1961 (1 ex.), Dukongko River, Stn. 49, 02.v.1961 (2 exs), Moshing, Stn. 22, 03.vi.1961 (3 exs), leg. K.C. Jayram; Bomdila, Tinga, 29.vi.1995 (7 exs) (25652/H4A), Sherra Bash, 30.viii.1998 (2 exs) (25653/H4A).

Type material. Paratype: B.M. Nepal Expedition, 1949 (B.M. 1949–637), *Afissula rana* gen.n., sp. nov., A.P. Kapur Det., 1954 [ZSI Registration Number: 9983/H4].

Distribution. India: Arunachal Pradesh (West Kameng). Elsewhere: China, and Nepal (Poorani 2004).

Remarks. *A. rana* can be distinguished from closely related species by the following characters: lateral margins of elytra invisible in dorsal view, pronotum reddish-testaceous except for yellowish margins (Fig 51), siphon narrow and lancet-shaped at apex (Fig 53), and parameres shorter than median lobe (Fig 52). The male genitalia of our specimen is identical with that of *A. rana* as illustrated in the original description by Kapur (1958: 320, figs 5a, c–f). The paratype of the species NZSI was also examined.

39. *Afissa undecimspilota* (Hope, 1831) comb. nov. (Fig. 35)*

Coccinella 11-spilota Hope, 1831: 31.

Epilachna undecimspilota: Jadwiszczak & Węgrzynowicz, 2003: 125.

Material examined. West Kameng: Dirang, Rahung, 1830m, 16.viii.1961, (2 exs), leg. S. Biswas.

Distribution. India: Arunachal Pradesh (West Kameng), and Northern India. Elsewhere: China, Bhutan, and Nepal (Poorani 2004; Kovář 2007).

Genus *Diekeana* Tomaszewska & Szawaryn 2015**40. *Diekeana macularis* (Mulsant, 1850) (Fig. 36)***

Epilachna macularis Mulsant, 1850: 797.

Solanophila macularis ab. *donckieri* Weise, 1912: 112.

Afissa macularis: Dieke, 1947: 120, figs 78, 153.

Epilachna macularis: Jadwiszczak & Węgrzynowicz, 2003: 86.

Diekeana macularis: Tomaszewska & Szawaryn, 2016: 74.



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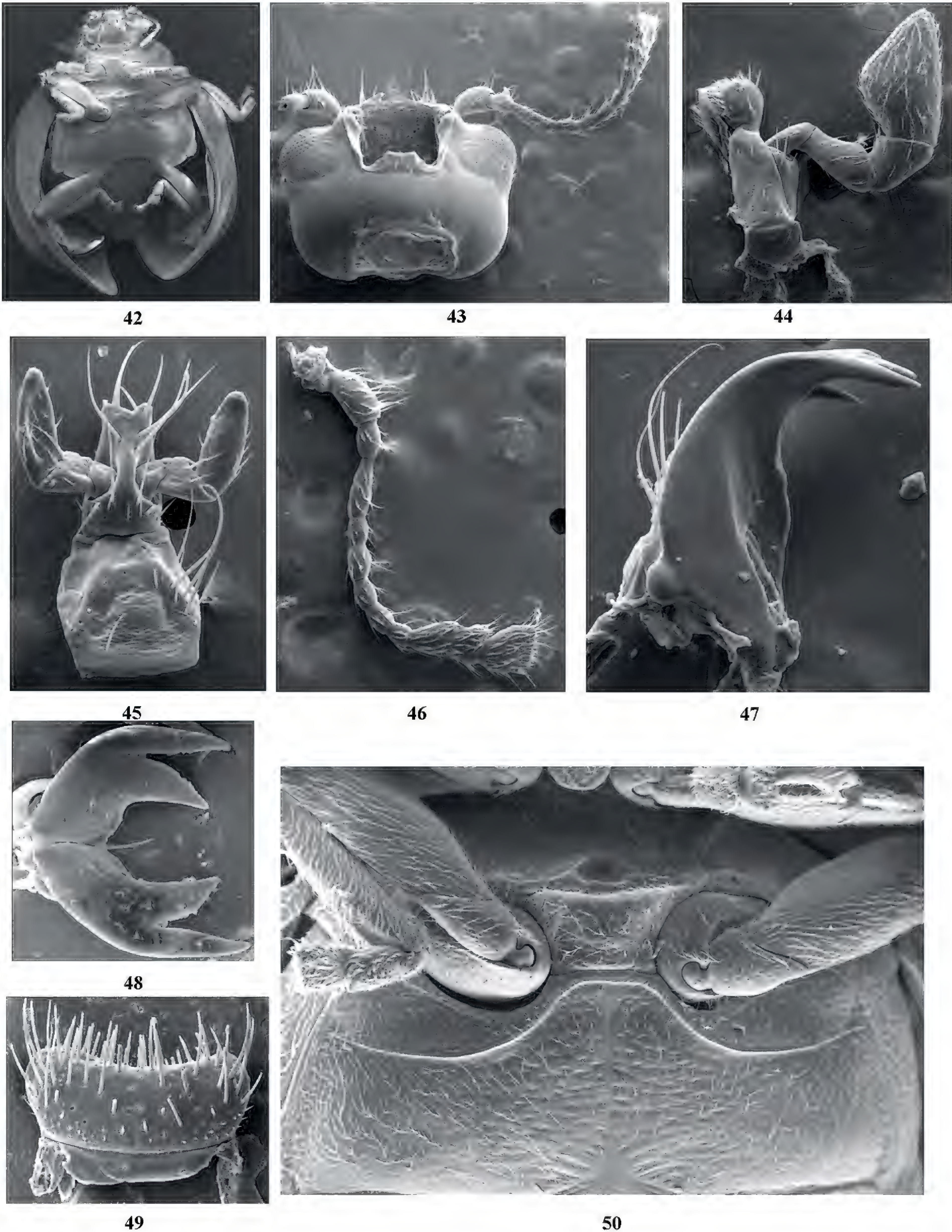


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Figs 33–41. Habitus of (33) *Afissa gibbera* (Crotch, 1874) comb. nov.; (34) *Afissa nielamuensis* (Pang & Mao, 1977); (35) *Afissa undecimspilota* (Hope, 1831) comb. nov.; (36) *Diekeana macularis* (Mulsant, 1850); (37) *Henosepilachna indica* (Mulsant, 1850); (38) *Henosepilachna vigintioctomaculata* (Motschulsky, 1857); (39) *Rodolia fumida* Mulsant, 1850; (40) *Jauravia quadrinotata* Kapur, 1946; (41) *Afissa mystica* (Mulsant, 1850) comb. nov.



Figs 42–50. Scanning electron microscope images of *Afissa mystica* (Mulsant, 1850) comb. nov. (42) Habitus in ventral view; (43) Head in ventral view; (44) Maxilla; (45) Labium; (46) Antennae; (47) Mandible; (48) Tarsal claws; (49) Labrum; (50) Meso-thorax.



Figs 51–53. *Afissa rana* (Kapur, 1958). (51) Habitus; (52) Phallobase in dorsal view; (53) Siphon.

Material examined. Lohit: Dapha Bum, Kamlang River, 3020 ft, Stn. No. 23, 22.xii.1969, (4 exs), leg. J.M. Julka. Tawang: Bomdila, 29.ix.2013 (1 ex. from *Astimicia* sp.) (25410/H4A), leg. J. Majumder.

Distribution. India: Arunachal Pradesh (Lohit, Tawang), and Meghalaya. Elsewhere: China and Nepal (Dieke 1947; Jadwiszczak & Wegrzynowicz 2003; Poorani 2004; Kovář 2007).

Genus *Henosepilachna* Li, 1961

41. *Henosepilachna indica* (Mulsant, 1850) (Fig. 37)*

Epilachna indica Mulsant, 1850: 776.

Epilachna ceylonica Weise, 1901: 418.

Epilachna indica: Kapur, 1961: 133–140.

Epilachna tertia Dieke, 1947: 66.

Henosepilachna indica: Jadwiszczak & Wegrzynowicz, 2003: 154.

Material examined. Lower Subansiri: Tamen, 457m, Stn. No. 17, 18.v.1966 (1 ex.), leg. A.N.T. Joseph. Lohit: Deopani, 350m, Stn. No. 8, 6.iii.1969, (3 exs), leg. S.K.Tandon; Kandu, 300 m, Stn. No. 9, 7.iii.1969, (5 exs); Digaru Road, 150m, Stn. No. 12, 11.iii.1969 (2 exs); Hayaliaung Road, 700 m, Stn. No. 13, 12.iii.1969,

(4 exs); Lohitpur Road, 150m, Stn. No. 14, 13.iii.1969 (1 ex.); Namsai, 100 m, Stn. No. 15, 15.iii.1969, (1 ex.), leg. S.K. Tandon.

Distribution. India: Arunachal Pradesh (Lower Subansiri, Lohit), Assam, and West Bengal. Elsewhere: Bhutan, China, Laos, Myanmar, Nepal, and Vietnam (Dieke 1947; Poorani 2004; Kovář 2007).

42. *Henosepilachna vigintioctomaculata* (Motschulsky, 1857) (Fig. 38)**

Epilachna vigintioctomaculata Motschulsky, 1857: 40.

Epilachna 28-maculata a. *incompleta* Mader, 1930: 184.

Epilachna 28-maculata a. *coalescens* Mader, 1930: 184.

Henosepilachna vigintioctomaculata: Jadwiszczak & Wegrzynowicz, 2003: 178.

Material examined. NEFA, Abor, 29.xii.1911, (1 ex.) leg. S.W. Kemp, New Aloppe: Rang, 17.ix.2000 (4 exs) (25332/H4A), leg. A.R. Lahiri.

Distribution. India: Arunachal Pradesh. Elsewhere: China, Japan, North Korea, Nepal, Russia, and Vietnam (Katakura 1981; Poorani 2004).

Remarks. This is the first verified record of the species from India, though it has been included from India by Poorani (2004).

Tribe Noviini Mulsant, 1846

Genus *Rodolia* Mulsant, 1850

43. *Rodolia fumida* Mulsant, 1850 (Fig. 39)*

Rodolia fumida Mulsant, 1850: 904.

Rodolia roseipennis Mulsant, 1850: 904.

Rodolia chermesina Mulsant, 1850: 905.

Epilachna arethusia Mulsant, 1853: 254.

Epilachna testicolor Mulsant, 1853: 255.

Material examined. West Kameng: Ankaling, Stn.11, 17.v.1961 (1 ex.), leg. K.C. Jayram.

Distribution. India: Arunachal Pradesh (West Kameng), Assam, Bihar, Delhi, Gujarat, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Tamil Nadu, Uttarakhand, Uttar Pradesh, and West Bengal. Elsewhere: China, Myanmar, Pakistan, and Sri Lanka (Kapur 1949; Poorani 2004; Kovář 2007).

Tribe Sticholotidini Weise, 1901

Genus *Jauravia* Motschulsky, 1858

44. *Jauravia quadrinotata* Kapur, 1946 (Fig. 40)*

Jauravia quadrinotata Kapur, 1946: 85; Miyatake, 1985: 3, figs 1–3.

Material examined. West Kameng: 15.iii.1961 (1 ex.), leg. K.C. Jayram.

Distribution. India: Arunachal Pradesh (West Kameng), Assam, Meghalaya, Sikkim, and West Bengal. Elsewhere: Bhutan, China, and Nepal (Bielawski 1972; Canepari 1997; Poorani 2002b, 2004; Kovář 2007).

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REFERENCES

- Barovsky V (1922) Revisio specierum palaearticularum Coccinellidarum generis *Exochomus* Redtb. Annuaire du Musée Bonn zoological Bulletin 69 (1): 27–44
- Zoologique de l'Académie des Sciences de Russie 23: 289–303
- Belicek J (1976) Coccinellidae of Western Canada and Alaska with analyses of the transmontane zoogeographic relationships between the fauna of British Columbia and Alberta (Insecta: Coleoptera: Coccinellidae). Quaestiones Entomologicae 12 (4): 283–409
- Bielawski R (1961) Bemerkung über die männlichen Genitalien von Arten der Gattung *Illeis* Muls., nebst Beschreibung einer neuen Art und einer Unterart (Coleoptera, Coccinellidae). Annales Zoologici 19: 353–368
- Bielawski R (1971) Über Coccinellidae (Coleoptera) aus Nepal. Khumbu Himal, Innsbruck-München. Ergebnisse Forsch Unternehmens Nepal Himalaya 4: 1–9
- Bielawski R (1972) Die Marienkäfer (Coleoptera: Coccinellidae) aus Nepal. Fragmenta Faunistica 18: 283–312
- Bielawski R (1979) Ergebnisse der Bhutan-Expedition 1972 des Naturhistorischen Museums in Basel. Coleoptera: Fam. Coccinellidae. Entomologica Basiliensia 4: 83–125
- Booth RG (1997) A review of the species of *Calvia* (Coleoptera: Coccinellidae) from the Indian Subcontinent, with descriptions of two new species. Journal of Natural History 31: 917–934
- Canepari C (1997) Coccinellidae (Coleoptera) from the Nepal Himalayas. Stuttgarter Beiträge zur Naturkunde Serie A (Biologie) 565 (65): 1–65
- Canepari C (2003) Coccinellidae (Insecta: Coleoptera) of Nepal from the collection of the Naturkundemuseum Erfurt. Pp. 261–265 in: Hartmann M & Baumbach H (eds) Biodiversity and Natural Heritage of the Himalaya. Vereinder Freunde & Förderer des Naturkundemuseums Erfurt e.V., Germany
- Crotch GR (1874) A Revision of the Coleopterous Family Coccinellidae, E.W. Janson London, 311 pp.
- Dieke GH (1947) Lady beetles of the genus *Epilachna* (sens. lat.) in Asia, Europe, and Australia. Smithsonian Miscellaneous Collections 106 (15): 1–183
- Fabricius JC (1781) Species Insectorum exhibentes eorum differentias specificas, synonyma auctorum, locanatalia, metamorphosin adiectis observationibus, descriptionibus. Hamburgi et Kilonii, C.E.Bohn 1, 522 pp.
- Goeze JAE (1777) Entomologische Beyträge zu des Ritters Linné zwölften Ausgabe des Natursystems. Erster Theil. Leipzig, 736 pp.
- Gupta D, Chandra K, Das P, Ghosh J (2018) Insecta: Coleoptera. Pp. 399–590 in: Chandra K, Gupta D, Gopi KC, Tripathy B & Kumar V (eds), Faunal Diversity of Indian Himalaya, Director, Zoological Survey of India, Kolkata
- Hayat A, Khan MR, Naz F (2017) Subfamilies Coccinellinae and Coccidullinae (Coccinellidae: Coleoptera) with New Records from AJK, Pakistan. Journal of Applied Environmental and Biological Sciences 7 (4): 21–66
- Hoàng DN (1983) Coccinellidae of Vietnam. Part. 2. Nha zuat ban khoa hoc va ky thuat, Hanoi, 159 pp.
- Hope FW (1831) Synopsis of the new species of Nepal insects in the collection of Major General Hardwicke. Pp. 21–32 in: Gray JE (eds), The Zoological Miscellany, Treuttel, Wurtz & Co., London
- Iablokoff-Khnzorian SM (1979) Genera der Paläarktischen Coccinellini (Coleoptera: Coccinellidae). Entomologische Blätter für Biologie und Systematik der Käfer 75 (1–2): 37–75
- Iablokoff-Khnzorian SM (1982) Les Coccinelles Coléoptères-Coccinellidae Tribu Coccinellini des régions Palearctique et Orientale. Boubée, Paris, 568 pp.

- Jadwiszczak A, Wegrzynowicz, P (2003) World Catalogue of Coccinellidae. Part I. Epilachninae. Mantis/Olsztyn, Poland, 264 pp.
- Kapur AP (1946) A revision of the genus *Jauravia* Mots. Annals and Magazine of Natural History 13 (11): 73–93
- Kapur AP (1948) A revision of the tribe Aspidimerini Weise (Coleoptera: Coccinellidae). Transactions of the Royal Entomological Society of London 99 (2): 77–128
- Kapur AP (1949) On the Indian species of *Rodolia* Mulsant (Coleoptera: Coccinellidae). Bulletin of Entomological Research 39: 531–538
- Kapur AP (1958) Coccinellidae of Nepal. Records of the Indian Museum 53 [1955]: 309–338
- Kapur AP (1961) Taxonomic notes on *Epilachna indica* Mulsant and description of a new species related to it (Coleoptera: Coccinellidae). Proceedings of the Royal Entomological Society of London (Series B, Taxonomy) 30 (9–10): 133–140
- Kapur AP (1963) The Coccinellidae of the third Mount Everest expedition, 1924 (Coleoptera). Bulletin of the British Museum (Natural History), Entomology 14: 1–48
- Korschefsky R (1932) Coccinellidae II. Pars 120. Pp. 1–435 in: Schenkling S (eds) Coleopterorum Catalogus. W. Junk, Berlin
- Kovář I (1997) Revision of the genera *Brumus* Muls. and *Exochomus* Redtb. (Coleoptera: Coccinellidae) of the Palearctic region. Part I. Acta Entomologica Musei Nationalis Pragae 44 (1995): 5–124
- Kovář I. (2007) Family Coccinellidae Latreille, 1807. Pp. 568–631 in: Löbl I & Smetana A (eds) Catalogue of Palearctic Coleoptera, Volume 4, Elateroidea-Derodontoidea – Bostrichoidea – Lymexyloidea – Cleroidea – Cucujoidea. Apollo Books, Stenstrup
- Li CS, Cook EF (1961) The Epilachninae of Taiwan (Col.: Coccinellidae). Pacific Insects 3 (1): 31–91
- Li W, Huo L, Ahrens D, Ren S, Wang X (2017) *Renius cornutus*, a new genus and species of Chilacorini from Tibet, China (Coleoptera, Coccinellidae). ZooKeys 678: 121–128
- Linnaeus C (1758) Systema Naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Laurentii Salvii, Holmiae, Stockholm 10th edition, 826 pp.
- Mader L (1930) Evidenz der paläarktischen Coccinelliden und ihrer aberrationen in Wort und Bild, I-Teil. Epilachnini, Coccinellini, Halyziini und Synonychini. Zeitschrift des Vereins der Naturbeobachter und Sammler 5: 124–168
- Mader L (1934) Evidenz der paläarktischen Coccinelliden und ihrer aberrationen in Wort und Bild, I-Teil. Epilachnini, Coccinellini, Halyziini und Synonychini. Zeitschrift des Vereins der Naturbeobachter und Sammler 9: 289–336
- Miyatake M (1965) Some Coccinellidae (excluding Scymnini) of Formosa (Coleoptera). Special Bulletin of the Lepidopterists' Society of Japan 1: 50–74
- Miyatake M (1967) Notes on some Coccinellidae from Nepal and Darjeeling district of India (Coleoptera). Transactions of the Shikoku Entomological Society 9: 69–78
- Miyatake M (1985) Coccinellidae collected by the Hokkaido University Expedition to Nepal Himalaya, 1968 (Coleoptera). Insecta Matsumurana (New Series) 30: 1–33
- Motschulsky Vde (1857) Insectes du Japon. Etudes Entomologiques 6: 25–41
- Mulsant E (1846) Histoire Naturelle des coléoptères de France. Sulcicollis-Sécupalpes. Maison, Paris 4: 380
- Mulsant E (1850) Species des Coléoptères trimères sécuripalpes. Annales des Sciences Physiques et Naturelles, d'Agriculture et d'Industrie 2 (2): 1–1104
- Mulsant E (1853) Supplément à la monographie des coléoptères trimères sécuripalpes. Annales de la Société Linnéenne de Lyon (N.S.) 1: 129–333
- Mulsant E (1866) Monographie des Coccinellides. Savy, Paris, 294 pp.
- Olivier AG (1808) Entomologie, ou Histoire Naturelle des Insectes, avec leurs caractères génériques et spécifiques, leur description, leur synonymie, et leur figure enluminée. Coléoptères. Desray, Paris: 613–1104
- Pang XF, Mao JL (1977) Notes on the Epilachninae of Tibet Autonomous Region (Coleoptera: Coccinellidae). Acta Entomologica Sinica, 20 (3): 323–328
- Poorani J (2002a) A review of the genus *Oenopia* Mulsant (Coleoptera: Coccinellidae) of the Indian subcontinent, with description of a new species. Oriental Insects 36 (1): 97–116
- Poorani J (2002b) An annotated checklist of the Coccinellidae (Coleoptera) (excluding Epilachninae) of the Indian subregion. Oriental Insects 36 (1): 307–383
- Poorani J (2004) An annotated checklist of the Coccinellidae (Coleoptera) of the Indian subregion: 1–90 Online at http://www.angelfire.com/bug2/j_poorani/checklist.pdf [last access on 22 May 2019]
- Poorani J (2014) *Calvia explanata* sp. n. (Coleoptera: Coccinellidae) from Indian Subcontinent. Biodiversity Data Journal 2, e1164. <https://doi.org/10.3897/BDJ.2.e1164>
- Poorani J (2019) A new species of *Micrapsis* Chevrolet (Coleoptera: Coccinellidae) from Arunachal Pradesh, India. Zootaxa 4559 (1): 189–192
- Poorani J, Booth RG (2006) A new sibling species of *Halyzia straminea* (Hope) (Coleoptera: Coccinellidae: Halyziini) from the Indian subcontinent. Zootaxa 1354: 63–68
- Poorani J, Booth RG (2016) *Harmonia manillana* (Mulsant), a new addition to Indian Coccinellidae, with changes in synonymy. Biodiversity Data Journal 4, e8030. Online at <http://doi.org/10.3897/BDJ.4.e8030>
- Poorani J, Sambath S (2017) Insecta: Coleoptera: Coccinellidae. Pp. 167–171 in: Director, Zoological Survey of India (eds), Fauna of Tawang, Arunachal Pradesh. Zoological Survey of India, Kolkata
- Poorani J, Lalitha N 2018. Illustrated accounts of coccinellid predators of *Maconellicoccus hirsutus* (Green) (Hemiptera: Sternorrhyncha: Pseudococcidae) on mulberry in India, with description of a new species of *Scymnus* Kugelann (Coleoptera: Coccinellidae) from West Bengal. Zootaxa 4382 (1): 93–120
- Poorani J, Thangjam R (2019) New additions to Indian fauna of Coccinellidae (Coleoptera). Oriental Insects: 1–19 Online at <http://doi.org/10.1080/00305316.2018.1550448> [online first]
- Poorani J, Ślipiński A, Booth RG (2008) A revision of the genus *Synona* Pope, 1989 (Coleoptera: Coccinellidae: Coccinellini). Annales Zoologici 58 (3): 579–594
- Ren S, Wang X, Pang H, Peng Z, Zeng P (2009) Colored Pictorial Handbook of Ladybird Beetles in China. Science Press, Beijing, 336 pp. [in Chinese]
- Robertson JA, Ślipiński A, Moulton M, Shockley FW, Giorgi A, Lord NP, McKenna DD, Tomaszewska W, Forrester J, Miller KB, Whiting MF, McHugh JV (2015) Phylogeny and classification of Cucujoidea and the recognition of a new superfamily Coccinelloidea (Coleoptera: Cucujiformia). Systematic Entomology 40: 745–778
- Seago AE, Giorgi JA, Li J, Ślipiński A (2011) Phylogeny, classification and evolution of ladybird beetles (Coleoptera: Coccinellidae) based on simultaneous analysis of molecular and morphological data. Molecular Phylogenetics and Evolution 60 (1): 137–151

- Sicard A (1913) Notes sur quelques Coccinellides de l'Inde et de Birmanie appartenant à la collection de M. Andrewes, de Londres et description d'espèces et de variétés nouvelles. *Annales de la Société Entomologique de France* 81 [1912]: 495–506
- Ślipiński SA (2007) Australian ladybird beetles (Coleoptera: Coccinellidae) their biology and classification. ABRS, Canberra and CSIRO Publishing, Melbourne, 762 pp.
- Szawaryn K, Bocak L, Ślipiński A, Escalona HE, Tomaszewska W (2015) Phylogeny and evolution of phytophagous ladybird beetles (Coleoptera: Coccinellidae: Epilachnini), with recognition of new genera. *Systematic Entomology* 40: 547–569
- Thunberg CP (1781) *Dissertatio entomologica. novae Insectorum species, sistens cujus partem primam*. J. Edman, Upsaliae, 28 pp.
- Timberlake PH 1943. The Coccinellidae or lady beetles of the Koebele collection-Part I. *The Hawaiian Planters Record* 47: 1–67
- Tomaszewska W, Szawaryn K (2016) Epilachnini (Coleoptera: Coccinellidae) – A revision of the world genera. *Journal of Insect Science* 16 (1): 1–91
- Vandenberg N, Gordon RD (1991) Farewell to *Pania* Mulsant (Coleoptera: Coccinellidae): a new synonym of *Propylea* Mulsant. *Coccinella* 3: 30–35
- Weise J (1895) *Aspidophorus 4-guttatus* n. sp. *Deutsche Entomologische Zeitschrift*: 326
- Weise J (1900) Coccinelliden aus Ceylon gesammelt von Dr. Horn. *Deutsche Entomologische Zeitschrift* 44: 417–448
- Weise J (1901) Contribution a l'étude de la faune entomologique de Sumatra (Chasses de M.J.L. Weyers) xv^e article. Coccinellides. *Annales de la Société Entomologique du Belgique* 45: 91–96
- Weise J (1902) Coccinelliden aus der Sammlung des ungarischen National Museums. *Természetrájsi Füzetek* 25: 489–520
- Weise J (1912) Über Hispien und Coccinelliden. *Archiv für Naturgeschichte* 78: 101–120
- Wiedemann CRW (1823) Zweihundert neue Käfer von Java, Bengalen und dem Vorgebirge der guten Hoffnung. *Zoologisches Magazin* 2 (1): 3–133